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- SEPTEMBER 2011 -

– NOTICE OF INTENT –

[Editor's Preface: The following notice has been edited for Microgram Bulletin. See the Federal Register: September 8, 2011 (Volume 76, Number 174) (Proposed Rules) (Pages 55616-55619) for the complete text.]

DEPARTMENT OF JUSTICE

Drug Enforcement Administration

21 CFR Part 1308

[Docket No. DEA-357]

Schedules of Controlled Substances: Temporary Placement of Three Synthetic Cathinones Into Schedule I

AGENCY: Drug Enforcement Administration, Department of Justice.

ACTION: Notice of Intent.

SUMMARY: The Administrator of the Drug Enforcement Administration (DEA) is issuing this notice of intent to temporarily schedule three synthetic cathinones under the Controlled Substances Act (CSA) pursuant to the temporary scheduling provisions of **21 U.S.C. 811(h)**. The substances are 4-methyl-N-methylcathinone (mephedrone), 3,4-methylenedioxy-N-methylcathinone (methylone), and 3,4-methylenedioxypyrovalerone (MDPV). This action is based on a finding by the Administrator that the placement of these synthetic cathinones into schedule I of the CSA is necessary to avoid an imminent hazard to the public safety. Any final order will be published in the Federal Register and may not be issued prior to October 11, 2011. Any final order will impose the administrative, civil, and criminal sanctions and regulatory controls of schedule I substances under the CSA on the manufacture, distribution, possession, importation, and exportation of these synthetic cathinones.

FOR FURTHER INFORMATION CONTACT: Imelda L. Paredes, Office of Diversion Control, Drug Enforcement Administration, 8701 Morrisette Drive, Springfield, Virginia 22152; Telephone (202) 307-7165.

SUPPLEMENTARY INFORMATION:

Background

The Comprehensive Crime Control Act of 1984 (Pub. L. 98-473), which was signed into law on October 12, 1984, amended section 201 of the CSA (**21 U.S.C. 811**) to give the Attorney General the authority to temporarily place a substance into schedule I of the CSA for one year without regard to the requirements of 21 U.S.C. 811(b) if he finds that such action is necessary to avoid imminent hazard to the public safety. 21 U.S.C. 811(h); **21 CFR 1308.49**. If proceedings to control a substance are initiated under 21 U.S.C. 811(a)(1), the Attorney General may extend the temporary scheduling up to six months. 21 U.S.C. 811(h)(2). Where the necessary findings are made, a substance may be temporarily scheduled if it is not listed in any other schedule under section 202 of the CSA (**21 U.S.C. 812**) or if there is no exemption or approval in effect under section 505 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 355) for the substance. 21 U.S.C. 811(h)(1). The Attorney General has delegated his authority under 21 U.S.C. 811 to the Administrator of DEA. 28 CFR 0.100.

Section 201(h)(4) of the CSA (21 U.S.C. 811(h)(4)) requires the Administrator to notify the Secretary of Health and Human Services of her intention to temporarily place a substance into schedule I of the CSA.\1\

[1\ Because the Secretary of Health and Human Services has delegated to the Assistant Secretary for Health of the Department of Health and Human Services the authority to make domestic drug scheduling recommendations, for purposes of this Notice of Intent, all subsequent references to "Secretary" have been replaced with "Assistant Secretary."]

The Administrator has transmitted notice of her intent to place mephedrone, methylone, and MDPV in schedule I on a temporary basis to the Assistant Secretary by letter dated June 15, 2011. The Assistant Secretary responded to this notice by letter dated July 25, 2011, and advised that based on review by the Food and Drug Administration (FDA) there are currently no investigational new drug applications (INDs) or approved new drug applications (NDAs) for MDPV, mephedrone, or methylone. The Assistant Secretary also stated that the Department of Health and Human Services has no objection to the temporary placement of MDPV, mephedrone, and methylone into schedule I of the CSA. DEA has taken into consideration the Assistant Secretary's comments. As MDPV, mephedrone, and methylone are not currently listed in any schedule under the CSA, and as no exemptions or approvals are in effect for MDPV, mephedrone, and methylone under Section 505 of the Federal Food, Drug, and Cosmetic Act (21 U.S.C. 355), DEA believes that the conditions of **21 U.S.C. 811(h)(1)** have been satisfied. Any additional comments submitted by the Assistant Secretary in response to this notification shall also be taken into consideration before a final order is published. 21 U.S.C. 811(h)(4).

To make a finding that placing a substance temporarily into schedule I of the CSA is necessary to avoid an imminent hazard to the public safety, the Administrator is required to consider three of the eight factors set forth in section 201(c) of the CSA (**21 U.S.C. 811(c)**). These factors are as follows: The substance's history and current pattern of abuse; the scope, duration and significance of abuse; and what, if any, risk there is to the public health. 21 U.S.C. 811(c)(4)-(6). Consideration of these factors includes actual abuse, diversion from legitimate channels, and clandestine importation, manufacture, or distribution. 21 U.S.C. 811(h)(3).

A substance meeting the statutory requirements for temporary scheduling (**21 U.S.C. 811(h)(1)**) may only be placed in schedule I. Substances in schedule I are those that have a high potential for abuse, no currently accepted medical use in treatment in the United States, and lack accepted safety for use under medical supervision. Available data and information for mephedrone, methylone, and MDPV indicate that these three synthetic cathinones have a high potential for abuse, no currently accepted medical use in treatment in the United States, and lack accepted safety for use under medical supervision.

Synthetic Cathinones

These synthetic cathinones are not currently listed in any schedule under the CSA. Synthetic cathinones are designer drugs of the phenethylamine class which are structurally and pharmacologically similar to amphetamine, 3,4-methylenedioxymethamphetamine (MDMA), cathinone and other related substances. The addition of a beta-keto ([beta]-keto) substituent to the phenethylamine core structure produces a group of substances that now have cathinone as the core structure. These substances have been used as research chemicals. There is no evidence in the scientific literature that these substances have any legitimate non-research uses and the Assistant Secretary has advised that there are no exemptions or approvals in effect under section 505 (21 U.S.C. 355) of the Federal Food, Drug and Cosmetic Act. In other words, these synthetic cathinones have

not been approved by the FDA for human consumption.

Synthetic cathinones, like amphetamine, cathinone, methcathinone, and methamphetamine, are central nervous system (CNS) stimulants. The three synthetic cathinones proposed for control, 4-methyl-N-methylcathinone (mephedrone), 3,4-methylenedioxy-N-methylcathinone (methylone), and 3,4-methylenedioxypyrovalerone (MDPV) cause sympathomimetic effects such as agitation, tachycardia, dilated pupils, hyperthermia, diaphoresis (profuse sweating), and hypertension. Because the pharmacological effects of synthetic cathinones are similar to those of methamphetamine, cathinone, methcathinone, and MDMA, the abuse of synthetic cathinones is also likely to be similar to these substances and potentially cause serious harm to the users.

Numerous retail products marketed under the guise of “bath salts” and “plant food” have been analyzed and mephedrone, methylone, and MDPV have been identified in varying mixture profiles and quantities in these products. Mephedrone, methylone, and MDPV are the most commonly encountered synthetic cathinones. These three substances represent more than 98% of the 1429 reported synthetic cathinones that have been seized by law enforcement, as reported to the National Forensic Laboratory Information System (NFLIS), a national repository of drug evidence analysis from forensic laboratories across the United States. Of all the reports of these substances recorded by NFLIS from January 2009 to June 2011, 791 reports (55%) were MDPV, 331 reports (23%) were mephedrone, and 279 reports (20%) were methylone. Thus, these three synthetic cathinones are the subject of this notice of intent.^[2]

[2] See "Background, Data and Analysis of Synthetic Cathinones: Mephedrone (4-MMC), Methylone (MDMC) and 3,4-Methylenedioxy-pyrovalerone (MDPV)," dated August 2011 in this rulemaking docket found at <http://www.regulations.gov>.]

Factor 4. History and Current Pattern of Abuse

The synthetic cathinones mephedrone, methylone, and MDPV have recently emerged on the United States' illicit drug market and are being perceived as being ‘legal’ alternatives to cocaine, methamphetamine, and MDMA. Although synthetic cathinones are new to the United States' illicit drug market, they have been popular drugs of abuse in Europe since 2007. MDPV is a derivative of pyrovalerone, which is a psychoactive drug that was used to treat chronic lethargy and fatigue. Research in anti-depressant and anti-parkinson agents resulted in the development and patenting of methylone. Methylone, however, has not been approved for these purposes. There are no currently accepted medical uses in treatment in the United States for mephedrone, methylone, or MDPV.

Mephedrone, methylone, and MDPV are falsely marketed as “research chemicals,” “plant food,” or “bath salts.” They are sold at smoke shops, head shops, convenience stores, adult book stores, and gas stations. They can also be purchased on the Internet and mailed using the U.S. Postal Service or international mail services. The packages of products containing these synthetic cathinones usually have the warning “not for human consumption,” most likely in an effort to circumvent statutory restrictions for these substances. Despite disclaimers that the products are not intended for human consumption, retailers promote that routine urinalysis drug tests will not typically detect the presence of these synthetic cathinones. However, analytical methods for the detection of mephedrone, methylone, MDPV, and other synthetic cathinones have recently been developed for these substances.

Evidence indicates that mephedrone, methylone, and MDPV are being abused for their psychoactive properties. Drug surveys found that these and other synthetic cathinones are being used as recreational drugs and are used as alternatives to illicit stimulants like MDMA and cocaine. Accordingly, mephedrone, methylone, and MDPV have been identified in human urine samples that were obtained for routine drug screenings, they have been detected in samples from drivers suspected of driving under the influence, and they have been detected by drug courts during mandatory periodic drug screens. They have also been identified in biological specimens from individuals (some exhibiting symptoms of "extreme agitation" or "excited delirium") who have been arrested for possession of a controlled substance, child endangerment, or homicide. They have been detected in samples from deceased whose causes of death were reported as drug-induced toxicity, multiple drug toxicity, or other causes (e.g., blunt force trauma from a vehicular collision or suicide).

Based on studies in the scientific literature, the marketing of products that contain mephedrone, methylone, and MDPV is geared towards teens and young adults. Accordingly, reports indicate that the main users of synthetic cathinones are young male adults. These substances are also used by mid-to-late adolescents and older adults. Many of these abusers of synthetic cathinones have a previous history of drug abuse.

According to drug surveys, the reported average amount of synthetic cathinones used per dose ranged from approximately 25 to 250 milligrams and the average amount used per session (i.e., repeated administration and binging) ranged from approximately 25 milligrams to five grams depending on the substance consumed, duration of intake, and route of administration. The most common routes of administration of these substances are nasal insufflation by snorting the powder and oral ingestion by swallowing capsules or tablets. Other reported methods of administration include injection, rectal administration, and "bombing" (wrapping a dose of powder in a paper wrap and swallowing). Synthetic cathinones have also been reported to be used in binges. Reasons cited for binging include to prolong the duration of effects, to satisfy a "craving," or to satisfy a strong urge to re-dose.

According to information found in drug surveys, clinical case reports, and law enforcement reports, users have reported using products containing mephedrone, methylone, and MDPV with other synthetic cathinones (e.g., butylone, fluoromethcathinone, 4-MEC, etc.), pharmaceutical agents (e.g., lidocaine, caffeine, benzocaine, etc.), or other recreational substances (e.g., amphetamine, MDMA, cocaine, gamma-butyrolactone (GBL), kratom, N,N-benzylpiperazine (BZP), and 1-(3-trifluoromethylphenyl)-piperazine (TFMPP)). Chemical analyses of seized and purchased synthetic cathinone products indicate that some products contain multiple substances. Furthermore, investigative toxicology reports of drug screens in which more than one substance was detected indicate that users have ingested products composed of drug combinations (e.g., a tablet composed of MDPV and BZP) or multiple drug products (e.g., a MDPV powder product and a MDMA tablet).

Factor 5. Scope, Duration and Significance of Abuse

The popularity of synthetic cathinones as recreational drugs has increased since they first appeared on the United States' illicit drug market. According to forensic laboratory reports, the first appearance of these synthetic cathinones in the United States occurred in 2009. In 2009, NFLIS registered 15 exhibits from eight states containing these three synthetic cathinones. In 2010, there were 560 reports from 29 states related to these substances registered in NFLIS and in the first two quarters of 2011 (January to June 2011) there were 391.

Based on reports to DEA from law enforcement and public health officials, synthetic cathinones are becoming increasingly prevalent and abused throughout the United States. At just one United States point of entry, the U.S. Customs and Border Protection (CBP) has encountered at least 96 shipments containing primarily mephedrone, methylone, and MDPV, as well as other synthetic cathinones like 4-MEC, butylone, fluoromethcathinone, and dimethylcathinone. Most of these shipments originated in China or India and were being shipped to destinations throughout the United States such as Arizona, Alaska, Hawaii, Kansas, Louisiana, Oklahoma, Oregon, Pennsylvania, Missouri, Virginia, Washington, and West Virginia. The American Association of Poison Control Centers, a non-profit, national organization that represents the poison control centers of the United States, reported that in 2010, poison control centers took 303 calls about synthetic cathinones. However, in just the first seven months of 2011, poison control centers have already received 4,137 calls relating to these products. These calls were received in poison control centers representing at least 47 states and the District of Columbia. Individual state poison control centers have also reported an increase in the number of calls regarding "bath salts" from 2009 to 2011.

Concerns over the abuse of these and other synthetic cathinones have prompted many states to control these substances. As of July 15, 2011, at least 33 states have emergency scheduled or enacted legislation placing regulatory controls on some or many of the synthetic cathinones. These states include Alabama, Arkansas, Florida, Georgia, Hawaii, Idaho, Illinois, Indiana, Kansas, Kentucky, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, New Jersey, New Mexico, New York, North Carolina, North Dakota, Ohio, Oklahoma, Oregon, Pennsylvania, Texas, Tennessee, Utah, Virginia, Washington, West Virginia, Wisconsin, and Wyoming. Several countries including all members of the European Union have also placed controls on the possession and/or sale of one or more of these substances. Moreover, the use of synthetic cathinones by members of the U.S. Armed Forces is prohibited.

Factor 6. What, If Any, Risk There Is to the Public Health

The risks to the public health associated with the abuse of mephedrone, methylone, and MDPV relate to acute and long term public health and safety problems. These synthetic cathinones have become a serious drug abuse threat as there have been reports of emergency room admissions and deaths associated with the abuse of these substances.

Clinical case reports indicate that these synthetic cathinones produce a number of stimulant-like adverse effects such as palpitation, seizure, vomiting, sweating, headache, discoloration of the skin, hypertension, and hyper-reflexia. Adverse effects associated with consumption of these drugs as reported by abusers include nose-bleeds, bruxism (teeth grinding), paranoia, hot flashes, dilated pupils, blurred vision, dry mouth/thirst, palpitations, muscular tension in the jaw and limbs, headache, agitation, anxiety, tremor, and fever or sweating. Consequently, numerous individuals have presented at emergency departments in response to exposure incidents and several cases of acute toxicity have been reported for the ingestion of mephedrone, methylone, or MDPV. In addition, case reports have shown that the abuse of synthetic cathinones can lead to psychological dependence like that reported for other stimulant drugs.

According to clinical case reports, investigative toxicological reports, and autopsy reports, mephedrone, methylone, and MDPV have been implicated in drug induced overdose deaths. In at least three reported deaths, one of these synthetic cathinones was ruled as the cause of death. Other deaths involved individuals under the influence of these synthetic cathinones who acted violently and unpredictably in causing harm to themselves or others. There have also been reports in the scientific literature of deaths caused by individuals who were driving under the influence of these synthetic cathinones.

A number of synthetic cathinones and their products, as identified by CBP and reported in the scientific literature, appear to originate from foreign sources. The manufacturers and retailers who make and sell these products do not fully disclose the product ingredients including the active ingredients or the health risks and potential hazards associated with these products. This poses significant risk to abusers who may not know what they are purchasing or the risk associated with the use of those products.

Available evidence on the overall health and social risks of mephedrone, methylone, and MDPV indicates that these substances can cause acute health problems, can potentially lead to dependency, or can cause death. The abuse of synthetic cathinones has been characterized by both acute and long term public health and safety problems and has resulted in deaths.

Finding of Necessity of Schedule I Scheduling To Avoid Imminent Hazard to Public Safety

Based on the above data and information, the continued uncontrolled manufacture, distribution, importation, exportation, and abuse of mephedrone, methylone, and MDPV pose an imminent hazard to the public safety. DEA is not aware of any recognized therapeutic uses of these synthetic cathinones in the United States. A substance meeting the statutory requirements for temporary scheduling (**21 U.S.C. 811(h)(1)**) may only be placed in schedule I. Substances in Schedule I are those that have a high potential for abuse, no currently accepted medical use in treatment in the United States, and lack accepted safety for use under medical supervision. Available data and information for mephedrone, methylone, and MDPV indicate that these three synthetic cathinones have a high potential for abuse, no currently accepted medical use in treatment in the United States, and lack accepted safety for use under medical supervision.

Conclusion

This notice of intent initiates expedited temporary scheduling action and provides the 30-day notice pursuant to section 201(h) of the CSA (**21 U.S.C. 811(h)**). In accordance with the provisions of section 201(h) of the CSA (**21 U.S.C. 811(h)**), the Administrator has considered available data and information and has set forth herein the grounds for her determination that it is necessary to temporarily schedule three synthetic cathinones, 4-methyl-N-methylcathinone (mephedrone), 3,4-methylenedioxy-N-methylcathinone (methylone), and 3,4-methylenedioxy-provalerone (MDPV) in Schedule I of the CSA to avoid an imminent hazard to the public safety.

Because the Administrator hereby finds that it is necessary to temporarily place these synthetic cathinones into Schedule I to avoid an imminent hazard to the public safety, any subsequent final order temporarily scheduling these substances will be effective on the date of publication in the Federal Register, and will be in effect for a period of up to 18 months pending completion of the permanent or regular scheduling process. It is the intention of the Administrator to issue such a final order as soon as possible after the expiration of 30 days from the date of publication of this notice. Mephedrone, methylone, and MDPV will then be subject to the regulatory controls and administrative, civil and criminal sanctions applicable to the manufacture, distribution, possession, importing and exporting of a Schedule I controlled substance under the CSA.

Regular scheduling actions in accordance with **21 U.S.C. 811(a)** are subject to formal rulemaking procedures done "on the record after opportunity for a hearing" conducted pursuant to the provisions of **5 U.S.C. 556** and

557. The CSA sets forth specific criteria for scheduling a drug or other substance. While temporary scheduling orders are not subject to judicial review (21 U.S.C. 811(h)(6)), the regular scheduling process of formal rulemaking affords interested parties with appropriate process and the government with any additional relevant information needed to make a determination. Final decisions which conclude the regular scheduling process of formal rulemaking are subject to judicial review. **21 U.S.C. 877.**

List of Subjects in 21 CFR Part 1308

Administrative practice and procedure, Drug traffic control, Reporting and recordkeeping requirements.

Under the authority vested in the Attorney General by Section 201(h) of the CSA (**21 U.S.C. 811(h)**), and delegated to the Administrator of the DEA by Department of Justice regulations (28 CFR 0.100), the Administrator hereby intends to order that 21 CFR Part 1308 be amended as follows:

PART 1308--SCHEDULES OF CONTROLLED SUBSTANCES

1. The authority citation for part 1308 continues to read as follows:

Authority: **21 U.S.C. 811, 812, 871(b)**, unless otherwise noted.

2. Section 1308.11 is amended by adding new paragraphs (g)(6), (7) and (8) to read as follows:

Sec. 1308.11 Schedule I.

* * * * *

(g) * * *

(6) 4-methyl-N-methylcathinone--1248 (Other names: mephedrone)

(7) 3,4-methylenedioxymethyl-N-methylcathinone--7540 (Other names: methylone)

(8) 3,4-methylenedioxypyrovalerone--7535 (Other names: MDPV)

Dated: September 1, 2011.

Michele M. Leonhart,
Administrator.

[FR Doc. 2011-23012 Filed 9-7-11; 8:45 am]

BILLING CODE 4410-09-P

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SELECTED REFERENCES

[The Selected References section is a compilation of recent publications of presumed interest to forensic chemists. Unless otherwise stated, all listed citations are published in English. Abbreviated mailing address information duplicates that which is provided by the abstracting service. Patents and Proceedings are reported only by their *Chemical Abstracts* citation number. For full text copies of any of the articles listed, you may email the DEA Library at dea.library -at- usdoj.gov.]

1. Abdel-Hay KM, Awad T, DeRuiter J, Clark CR. **Differentiation of methylenedioxybenzylpiperazines (MDBPs) and methoxymethylbenzylpiperazines (MMBPs) by GC-IRD and GC-MS.** Forensic Science International 2011;210(1-3):122-128. [Editor's Notes: Presents title study. Contact: Dept. of Pharmacal Sciences, Harrison School of Pharmacy, Auburn University, Auburn, AL 36849, USA.]

2. Brandt SD, Sumnall HR, Measham F, Cole J. **Analyses of second-generation ‘legal highs’ in the UK: Initial findings.** Drug Testing and Analysis 2010;2(8):377-382. [Editor’s Notes: Twenty-four ‘legal high’ products were purchased online from 18 UK-based websites over a period of six week following the ban in April 2010. Qualitative analyses were carried out by GC/MS using electron- and chemical ionization modes, NMR spectroscopy, and comparison with reference standards. Overall, the purchased products consisted of single cathinones or cathinone mixtures including mephedrone, butylone, 4-methyl-N-ethylcathinone, flephedrone (4-fluoromethcathinone) and MDPV (3,4-methylenedioxypyrovalerone). Benzocaine, caffeine, lidocaine, and procaine were also detected. An emphasis was placed on ‘Energy 1’ (NRG-1), a product advertised as a legal replacement for mephedrone-type cathinone derivatives usually claiming to contain naphyrone (naphthylpyrovalerone). It was found that 70% of NRG-1 and NRG-2 products appeared to contain a mixture of cathinones banned in April 2010 and rebranded as ‘new’ legal highs, rather than legal chemicals such as naphyrone as claimed by the retailers. Only one out of 13 NRG-1 samples had analytical data consistent with naphyrone. Contact: School of Pharmacy and Biomolecular Sciences, Liverpool John Moores University, Liverpool, United Kingdom L3 3AF.]
3. Jankovics P, Varadi A, Toelgyesi L, Lohner S, Nemeth-Palotas J, Koszegi-Szalai H. **Identification and characterization of the new designer drug 4'-methylethcathinone (4-MEC) and elaboration of a novel liquid chromatography-tandem mass spectrometry (LC-MS/MS) screening method for seven different methcathinone analogs.** Forensic Science International 2011;210(1-3):213-220. [Editor’s Notes: Presents title study. Contact: Zrinyi u. 3., National Institute of Pharmacy, PO Box 450, Budapest H-1051, Hungary.]
4. Maher HM, Awad T, DeRuiter J, Clark CR. **GC-IRD methods for the identification of some tertiary amines related to MDMA.** Forensic Science International 2010; 199(1-3):18-28. [Editor’s Notes: Presents title study. Contact: Department of Pharmaceutical Analytical Chemistry, Faculty of Pharmacy, Alexandria University, Alexandria, Egypt 21521.]
5. Russell MJ, Bogun B. **New “party pill” components in New Zealand: The synthesis and analysis of some β -ketone analogues of 3,4-methylenedioxymethamphetamine (MDMA) including β k-DMBDB (β -ketone-N,N-dimethyl-1-(1,3-benzodioxol-5-yl)-2-butanamine).** Forensic Science International 2011;210(1-3):174-181. [Editor’s Notes: Presents title study. Contact: Institute of Environmental Science and Research (ESR) Limited, Mt Albert Science Centre, Hampstead Road, Sandringham, Auckland, New Zealand.]
6. Wood JL, Steiner RR. **Purification of pharmaceutical preparations using thin-layer chromatography to obtain mass spectra with Direct Analysis in Real Time and accurate mass spectrometry.** Drug Testing and Analysis 2011;3(6):345-351. [Editor’s Notes: Presents title study. Contact: Department of Forensic Science, Virginia Commonwealth University, Richmond, VA 23284, USA.]

Additional References of Possible Interest:

1. Bendinskas K, Sattelberg P, Crossett D, Banyikwa A, Dempsey D, MacKenzie JA. **Enzymatic detection of γ -hydroxybutyrate using aldo-keto reductase 7A2.** Journal of Forensic Sciences 2011;56(3):783-787. [Editor's Notes: Presents title study. Contact: Department of Chemistry, SUNY-Oswego, Oswego, NY 13126, USA.]
2. Dahlen J, Lundquist P, Jonsson M. **Spontaneous formation of γ -hydroxybutyric acid from γ -butyrolactone in tap water solutions.** Forensic Science International 2011;210(1-3):247-256. [Editor's Notes: Presents title study. Contact: Swedish National Laboratory of Forensic Science - SKL, Linköping SE-581 94, Sweden.]
3. Lanzarotta A, Lakes K, Marcott CA, Witkowski MR, Sommer AJ. **Analysis of counterfeit pharmaceutical tablet cores utilizing macroscopic infrared spectroscopy and infrared spectroscopic imaging.** Analytical Chemistry 2011;83(15):5972-5978. [Editor's Notes: Advantages and limitations of analyzing authentic and counterfeit pharmaceutical tablets with both macro (non-imaging) attenuated total internal reflection Fourier transform IR (ATR-FTIR) spectroscopy and micro ATR-FTIR spectroscopic imaging have been evaluated. The results of this study demonstrated that micro ATR imaging was more effective for extracting formulation information (sourcing), whereas a macro ATR approach was better suited for counterfeit detection (screening). More importantly, this study demonstrated that a thorough analysis of the counterfeit core can be achieved by combining the results of both techniques. Contact: Trace Examination Section, FDA Forensic Chemistry Section, FDA Forensic Chemistry Center, 6751 Steger Drive, Cincinnati, Ohio 45237, USA.]
4. Lopatka M, Vallat M. **Surface granularity as a discriminating feature of illicit tablets.** Forensic Science International 2011;210(1-3):188-194. [Editor's Notes: Presents title study. Contact: Department of Illicit Drugs, Netherlands Forensic Institute, Postbus 24044, The Hague 2490 AA, Netherlands.]
5. Liu G, Ma S, Ji T, Zhao H, Wang W. **Differentiation of illicit drugs with THz timedomain spectroscopy.** Nuclear Science and Techniques 2010;21(4):209-213. [Editor's Notes: Presents title study. Contact: Shanghai Institute of Applied Physics, Chinese Academy of Sciences, Shanghai, Peoples Republic of China 201800.]
6. Mazel V, Reiche I, Busignies V, Walter P, Tchoreloff P. **Confocal micro-X-ray fluorescence analysis as a new tool for the non-destructive study of the elemental distributions in pharmaceutical tablets.** Talanta 2011;85(1):556-561. [Editor's Notes: Determining the distribution of the different compounds inside the tablet is an important issue for both production quality control and counterfeit detection. Most of the currently used techniques are limited to the study of the surface of the compacts, whereas the study of the bulk requires time-consuming sample preparation. The use of 3D micro-X-ray fluorescence analysis (3D μ XRF) for the non-destructive study of pharmaceutical tablets is demonstrated. This study shows that it is possible to measure the distribution of several inorganic elements from the surface to a depth of several hundred microns. The ability to this technique to measure the thickness of tablet coatings is also demonstrated. Contact: EA 401, UFR de Pharmacie, Laboratoire "Materiaux et sante," Univ. Paris-Sud, Chateaufort 92240, France.]

7. Nelson HC, Gardner EA, Matteo D. **Microcrystal analysis of cocaine hydrochloride and added adulterants.** Journal of Forensic Sciences 2011;56(3):736-740. [Editor's Notes: The changes in crystal morphology of cocaine in the presence of common adulterants, caffeine and lidocaine hydrochloride, is presented. Contact: Department of Justice Sciences, University of Alabama at Birmingham, Birmingham, AL, USA.]
8. Niessen WMA. **Fragmentation of toxicologically relevant drugs in positive-ion liquid chromatography-tandem mass spectrometry.** Mass Spectrometry Reviews 2011;30(4):626-663. [Editor's Note: The positive ion MS/MS spectra of approximately 570 compounds were interpreted by chemical and therapeutic class. The study places an emphasis on class-specific fragmentation rather than the fragmentation of each individual compound. Contact: Hyphen MassSpec, de Wetstraat 8, Leiden 2332 XT, Netherlands.]
9. Pelander A, Decker P, Baessmann C, Ojanpera I. **Evaluation of a high resolving power time-of-flight mass spectrometer for drug analysis in terms of resolving power and acquisition rate.** Journal of the American Society for Mass Spectrometry 2011;22(2):379-385. [Editor's Notes: The performance of a high resolving power TOFMS instrument was evaluated for drug analysis. Flow injection analysis of critical drug mixtures, including a total of 17 compounds with nominal masses of 212-415 Da and with mass differences of 8.8-23.5 mDa, Resolving Power (RP) varied from 34,400 to 51,900 (FWHM). The effect of acquisition rate on RP, mass accuracy, and isotopic pattern fit was studied by applying 1, 2, 5, 10, and 20 Hz acquisition rates in a 16 min gradient elution LC separation. All three variables were independent of the acquisition rate, with an average mass accuracy and isotopic pattern fit factor (mSigma) of 0.33ppm and 5.9, respectively. The average relative standard deviation of RP was 1.8%, showing high repeatability. Contact: Hjelt Institute, Department of Forensic Medicine, University of Helsinki, Helsinki FI- 00014, Finland.]

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THE DEA FY 2011 STATE AND LOCAL FORENSIC CHEMISTS SEMINAR SCHEDULE

The FY 2012 schedule for the State and Local Forensic Chemists Seminar is as follows:

November 14-18, 2011

March 19-23, 2012

June 11-15, 2012

September 10-14, 2012

The school is open only to forensic chemists working for law enforcement agencies. It is intended for chemists who have completed their agency's internal training program and have also been working on the bench for at least one year. There is no tuition charge. The course is held at the Hyatt Place Dulles North Hotel in Sterling, Virginia (near the Washington/Dulles International Airport). A copy of the application form is reproduced on the last page of this issue of *Microgram Bulletin*. Completed applications should be mailed to the Special Testing and Research Laboratory at 22624 Dulles Summit Court, Dulles, VA 20166. For additional information, email [DEA-Forensic Chemist Seminar -at- usdoj.gov](mailto:DEA-Forensic-Chemist-Seminar-at-usdoj.gov) (replace -at- with @).

SCIENTIFIC MEETINGS

Title: Southwestern Association of Forensic Scientists Annual Conference
Sponsoring Organization: Southwestern Association of Forensic Scientists
Inclusive Dates: October 3-7, 2011
Location: Houston Marriott at Texas Medical Center (Houston, TX)
Contact Information: See website
Website: www.swafs.us

Title: The 2011 Northeastern Association of Forensic Scientists Annual Meeting
Sponsoring Organization: Northeastern Association of Forensic Scientists
Inclusive Dates: November 1-5, 2011
Location: Hyatt Regency Hotel & Spa (Newport, RI)
Contact Information: See website
Website: www.neafs.org

DEA State and Local Forensic Chemist Seminar Application			
Name: (PRINT NAME EXACTLY AS IT IS TO APPEAR ON CERTIFICATE)		Title:	
Employer:			
Your Office Mailing Address (include city, state, and zipcode):			Length of Service:
Business Telephone: () -	Business Fax: () -	Date of Application:	
Email Address:			
Education			
College or University	Degree	Major	
Please Check Which Techniques or Equipment Are Used in Your Laboratory			
<input type="checkbox"/>	Color Tests	<input type="checkbox"/>	UV
<input type="checkbox"/>	Column Chromatography	<input type="checkbox"/>	IR
<input type="checkbox"/>	Microcrystal Tests	<input type="checkbox"/>	CE
<input type="checkbox"/>	Thin Layer Chromatography	<input type="checkbox"/>	GC/MS
<input type="checkbox"/>	GC	<input type="checkbox"/>	Other (please specify)
<input type="checkbox"/>	HPLC	<input type="checkbox"/>	Other (please specify)
Indicate Analytical Problem(s) Nominee Would Like to Have Covered:			
Choice of Seminar Dates:			
1st Choice:		2nd Choice:	
Laboratory Chief/Director:			
Printed Name: _____		Signature: _____	
Title: _____		Date: _____	
Phone: _____			